Voices for SSL Efficiency:
Opportunities to Partner and Participate
April 23-24, 2007 ■ Pasadena, CA

DETAILED CASE STUDY FOR BREAKOUT SESSIONS

Integrated SSL Table Lamp

A core activity of the DOE SSL Market Introduction Workshop will explore case studies based on five hypothetical SSL products intended for various market applications. Workshop attendees will participate in one of the five case study breakout sessions.

This exercise is a vehicle for determining how DOE commercialization plan elements will best support the market introduction needs of new SSL products. It will serve to identify major stakeholders and the elements of the DOE programs where their participation will be most valuable. And it will provide valuable feedback to improve the design of DOE programs.

The Assignment
Each breakout group will consider one case study, working together to:

- Outline a general strategy to sell their target product, identifying issues that are particularly important for that product, such as barriers to overcome, critical information needs, involvement of critical trade allies, etc.
- Consider which elements of the DOE commercialization programs can best support their strategy and how. Could there be improvements?

The case studies include a lot of questions, provided to help you think about the issues. Some may apply, and some may not. The group doesn't need to address all the questions, but should address the questions and issues that are most important for this case study.

Case Study Structure
Each case study includes:

- An Introduction that identifies the product and places it within its intended market segment, outlining competitive advantages and disadvantages.
- The Product Description offers additional detail on performance.
- Pricing further defines the market served.
- Other Considerations are things the group may want to think about specific to this product.

Please note: The case study products are ***hypothetical*** products with ***plausible*** performance parameters (or that's the intention). In many cases, they would be technically challenging to produce today, but that doesn't matter for this exercise. Don't worry too much about the performance or market numbers, or spend time re-designing the product. This information is provided in the case studies only to help you understand the issues related to this product.

SSL Market Introduction Workshop
Breakout Case Study #1

Integrated SSL Table Lamp

Introduction: The target product is an integrated SSL table lamp intended for residential use. This product is intended to compete with incumbent portable residential light fixtures of similar types having a 100W incandescent light source. Pricing is such that there is a clear economic advantage arising from the energy savings when compared to either an incandescent or compact fluorescent (CFL) conventional product, although the former is obviously more dramatic. Principal issues in selling this product, and hence important aspects of the marketing plan, may revolve around skepticism as to the advertised lifetime or concerns about the fully integrated design which does not permit changing the light source, i.e., "no customer-repairable components within". There may also be some difficult sales channel issues.

Product Description: Luminaire efficacy of the table lamp, as an integrated fixture, is about 50 LPW. Most of the light is directed in an upward or downward direction by design to improve the efficiency while still offering a table lamp "flavor." This is in contrast to the performance of a conventional table lamp, which has a similar appearance to the new product, but a great deal of light is trapped within the shade, reducing the overall efficiency. Although the "advertised" efficacy of the typical 100W replacement light bulb is approximately 15 LPW, it is reduced to less than 10 LPW when installed in the fixture, making the new SSL table lamp about five times as efficient as a conventional lamp, and it uses only about 15W. The solid-state LED light source is built into the product, is not replaceable, and it lasts the life of the product, about 15 years. The integrated design includes a dimmer, as this feature requires special-purpose electronics for best performance. The LED table lamp is available in a number of design variations intended to address the "middle" of the residential consumer lighting market.

Pricing: The average conventional portable table lamp sells for approximately $25, exclusive of the incandescent lamp, which is approximately $1 per lamp. The light bulbs have a life of about one year in typical residential use (1000-1500 hours), so they will need replacement at least annually. The new product is premium-priced at about $40, which is intended to make the product competitive with traditional products when taking energy savings and lamp life into account.

Other Considerations: This product is designed to appeal to the energy-conscious consumer. As such, alternative competition is available: the consumer could buy a conventional table lamp light fixture and CFL replacement bulbs instead of the integrated fixture. How would this work out? CFLs cost around $4 per lamp and last for 5 years. So the light source replacement cost using CFLs is, over 15 years, around $12 relative to $15 for incandescent replacements. Thus, CFLs are *marginally more attractive* than incandescent on a first-cost basis. What about energy savings? The CFL has a system efficacy of 55 LPW (lamp plus ballast only), yielding only about 30 LPW luminaire efficacy, *still considerably less attractive* than the LED fixture (but much closer to the LED fixture than is the incandescent).

The Market: Approximately 40 million table lamps are sold in the U.S. in a year. Most portable fixtures of this type are selected and purchased directly by the consumer, in contrast to built-in type fixtures, which may be selected by a contractor or builder with perhaps only limited input from the end customer. This product, with its available design variants, can address about one fourth to one third of the available market – say 10-15 million units' addressable market. Table lamps are sold through a variety of sales channels, including department stores, home improvement outlets, and specialty lighting shops. In contrast, the replacement bulbs are mainly sold through grocery and drug stores, hardware chains, and

mass merchandisers. With the long life of the integrated SSL table lamp, several of these conventional outlets will be left out and more sales volume will accrue to the traditional light fixture sales channels.

The Assignment

Your Job: Your assignment is to design a marketing strategy for this product. Trade-offs in price, energy savings, and color quality will need to be addressed in a constructive way. The marketing strategy will need to address quality and pricing issues squarely in dealing with a complex combination of decision-makers. Your company, a mid-sized manufacturer of lighting fixtures, has many years of experience with traditional lighting and many relationships along the value chain, but this is your first SSL product. DOE has developed a plan that will involve many public organizations such as government agencies, utility companies, state energy efficiency organizations, industry organizations, and others. They have begun important educational, technical support, and standardization activities intended to accelerate market development. Most activities, however, are not directed at any particular market segment or product type. An important aspect of this market development exercise is to determine how you can most effectively use these programs to achieve your goals. How should DOE or the other organizations apply or improve these programs to best support the needs of this target product and market?

The Task, Part I: Frame the general outlines of the marketing strategy.

- Where are the weaknesses in the incumbent products that can provide new opportunity? What are the key competitive barriers to success? What are the technological barriers to success?
- How can you best exploit the energy savings inherent in this product to foster market acceptance?
- What has to happen for a successful market introduction of an energy-efficient residential-use table lamp? Define "success." What are your sales goals for the first year or two?
- What segments or niches of this residential market might be particularly appropriate for initial attention? Who are the influencers in these segments?
- What buyer behaviors will need to change in order to achieve success? What are the barriers to these changes? How can you address them?
- What are the appropriate sales channels? How will you deal with your traditional sales that may be left out in the new paradigm? What changes will the targeted sales channels see?
- What other barriers do you perceive to marketing of this product?

The Task, Part II: Identify the roles of the government and non-government agencies and organizations. What market introduction options could DOE (and its partners) initiate?

- In the table below are listed some potential market-assisting activities that many public and industry organizations may be willing to support. Which do you think would be most useful? How would you apply these activities to your overall plan?
- Which activities are not useful for this particular product? Why? Could they be improved?
- What other elements would you add to this list?
- You have heard about the commercialization activities at the DOE. Which elements of the DOE plan would best contribute to your marketing strategy?
- What other groups will be most important to engage to achieve success? With which aspects of your strategy can they most usefully assist?

General Comments and Advice:

- Your team has limited time to put together a solution to this assignment. For best results (and most useful for this workshop) spend only a portion of the first day's breakout session on Part I and do some brainstorming on Part II. Use the second day breakout to complete your evaluation to tidy up your presentation.
- Don't spend a lot of time debating the numbers in the case study. The idea is to give you something concrete to work with, not to give you a review of the lighting market or for you to design a specific product.
- Give your product a name. Make it sell!

Campaign elements	**Stakeholders and roles***	**How could you use this element for this product?**
Buyer Guidance		
a) ENERGY STAR® Criteria		
b) Design/Purchasing Guidance		
Design Competitions		
a) Lighting for Tomorrow (Residential Fixtures)		
b) Commercial Fixtures Competition		
c) Lighting Design Competition for Exterior & Interior Spaces		
d) State-of-the-Art LED Luminaire Showcase		
Technology Demonstrations/Procurements		
a) Demonstrations of Market Readiness		
b) Demonstrations to Test Field Performance		
Commercial Product Testing		
a) Commercial Product Testing Program		
Technical Information		
a) Information Development and Dissemination		
b) Technical Information Network		
Standards and Test Procedures		
a) Standards/Testing Procedure Development Support		
Coordination/Leadership		
a) Facilitating and Coordinating Local and Regional Efforts		
b) Federal Government Leadership		
Other		

* Stakeholders: Standards organizations, manufacturers, industry associations, commercial lighting distributors, residential lighting showrooms, retailers, ESCOs, EEPs, utilities, state energy efficiency programs, large purchasers, energy efficiency advocates, others…